

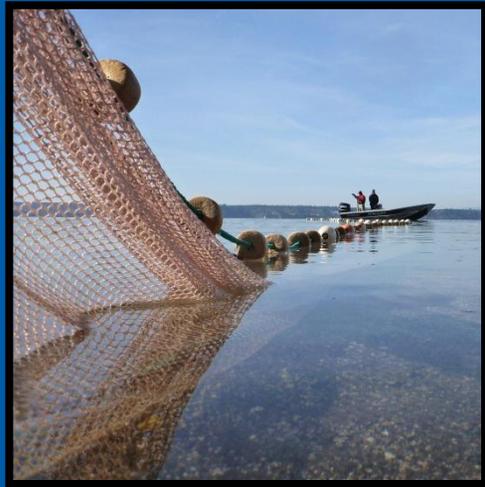


WASHINGTON STATE DEPARTMENT OF
Natural Resources

Peter Goldmark - Commissioner of Public Lands



WASHINGTON STATE AQUATIC RESERVES PROGRAM: PUGET SOUND CORPS TEAM



WASHINGTON STATE AQUATIC RESERVES PROGRAM: WHO WE ARE?





Mission: To conserve and enhance the Natural Resources of Washington and to help young adults enrich themselves by providing a meaningful work and service experience

- Established in 1983; modeled after the Civilian Conservation Corps
- Puget Sound Corps created in 2011 to carry out the Puget Sound Partnership's Action Agenda
- 2012 Jobs Now Act provided funding

PUGET SOUND CORPUS TEAM





AmeriCorps



Department of Ecology



WCC Individual Placement



Puget Sound Corps



Department of Natural
Resources



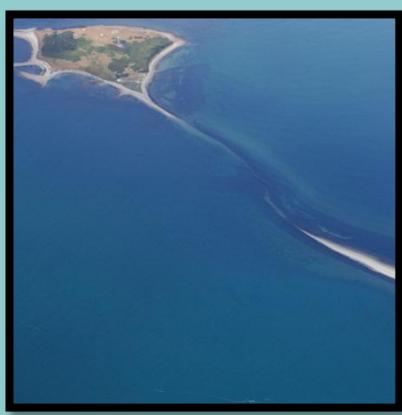
Aquatic Reserves Program

*“Working in critical habitats to
help restore and protect
Puget Sound”*

Our Projects

- Forage fish spawning surveys
- Mussel Watch
- SeagrassNet
- Marine Debris Collection
- Creosote Identification and Removal
- Sediment sampling





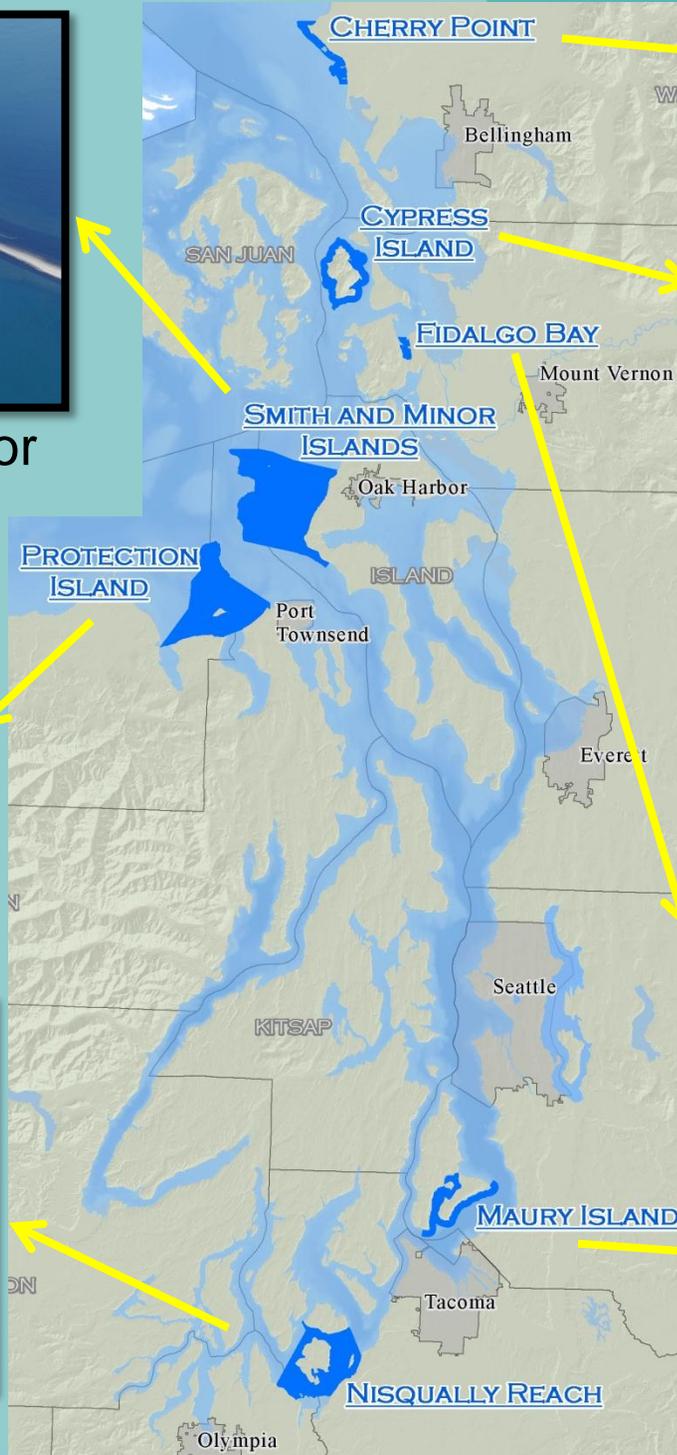
Smith & Minor



Protection Island



Nisqually Reach



Cypress Island



Fidalgo Bay

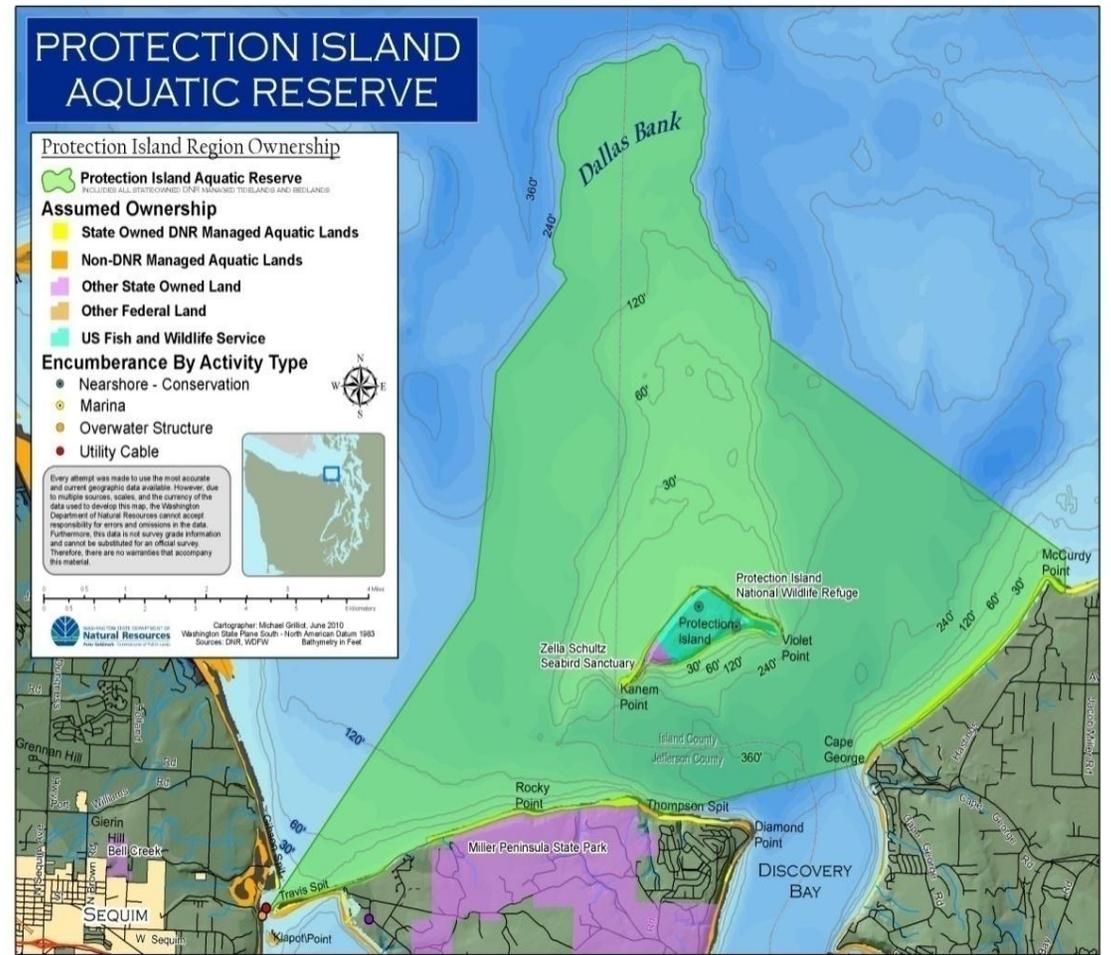


Cherry Point



Maury Island

Protection Island Reserve



Protection Island Reserve



Forage Fish Spawning Surveys

- *Objective: To identify critical spawning habitat for Surf smelt and Pacific sand lance*



Forage Fish Spawning Surveys

- Forage Fish are a key link in the marine food web
- Spawn on beaches throughout Puget Sound, usually at or near high tide
- Require certain substrate for spawning- sand and gravel mixture
- Sampling involves taking sediment samples along a 100 ft. transect



Forage Fish Spawning Surveys

- Data collected (in the field and lab) will be submitted to SalmonScape, an online mapping tool (WDFW).

Low High tide: 9:48 AM 9:44 second of low tide: 5:52 PM 6:44 (4/18/12) SJC Forage Fish Spawning Surveys Page 1 of 1

Site: PROTECTION ISLAND Date: 19 11 2012 Reviewed By: _____

Beach Number	Sample Number	Time	Latitude			Longitude			Beach	Catch	Depth	Tide	Wind	Wave	Rock	Silt	Width	Length	Volume	Remarks
			N	E	W	N	E	W												
1	1	1315	48	09	658	122	92	551	5	1	4	66					5	C	2	
1	2	1324	48	09	646	122	97	620	5	1	7						4	C	1	small fish, mostly young
1	3	1336	48	09	565	122	98	049	5	1	7						4	C	1	small fish, mostly young
1	4	1403	48	09	370	122	98	911	5	1	1						15	12	2	abundant, also lots of small fish, mostly dead to be used

Samplers: GM CW MH

Field

Samples collected 11/19/2012 Forage Fish Spawn Sample Analysis Page ____ of ____

Location: Protection Island Date: 11 20 2012 Recorder: Calan

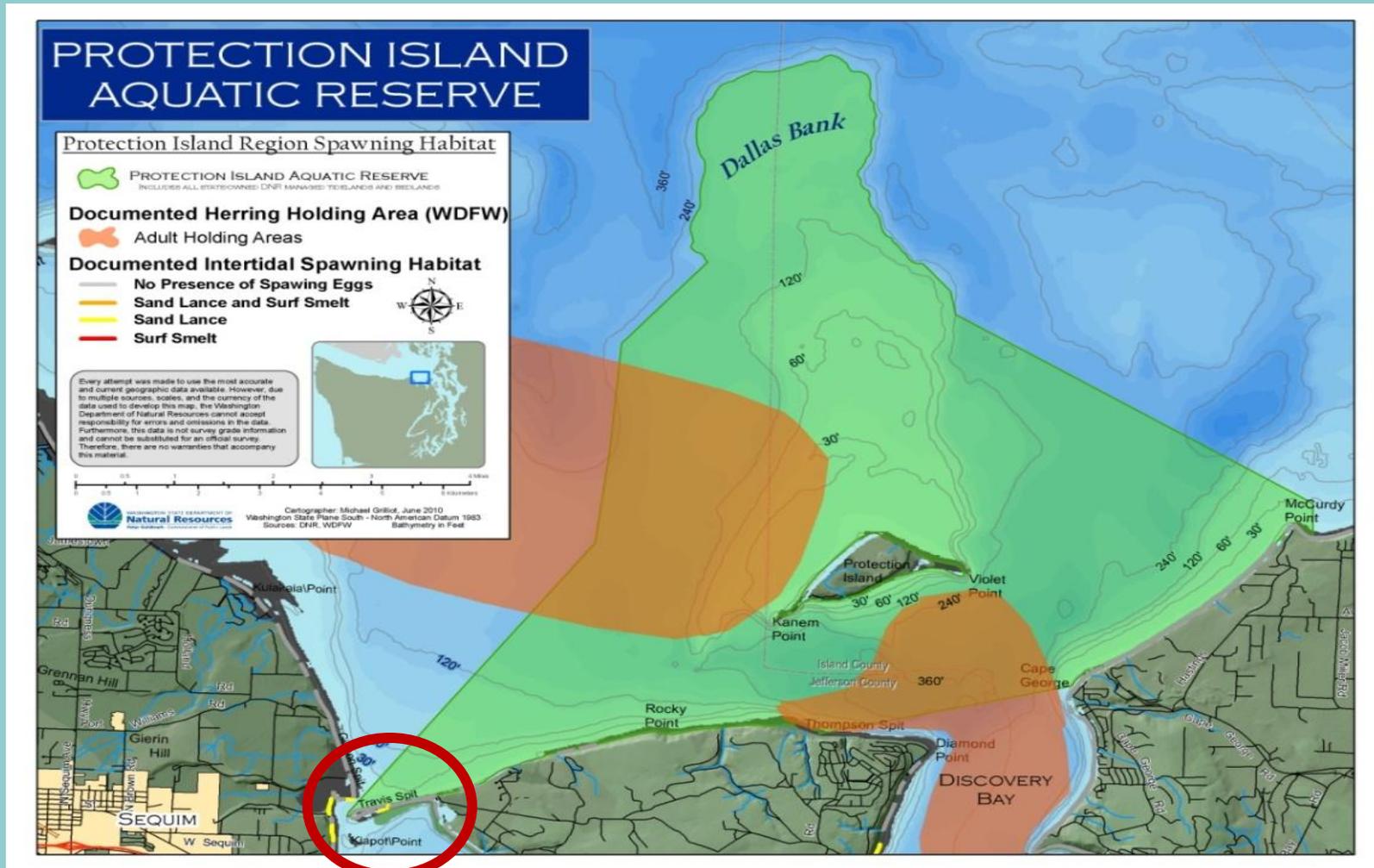
Island: _____ month: _____ day: _____ year: _____

East of Lacey Park - Miller Peninsula

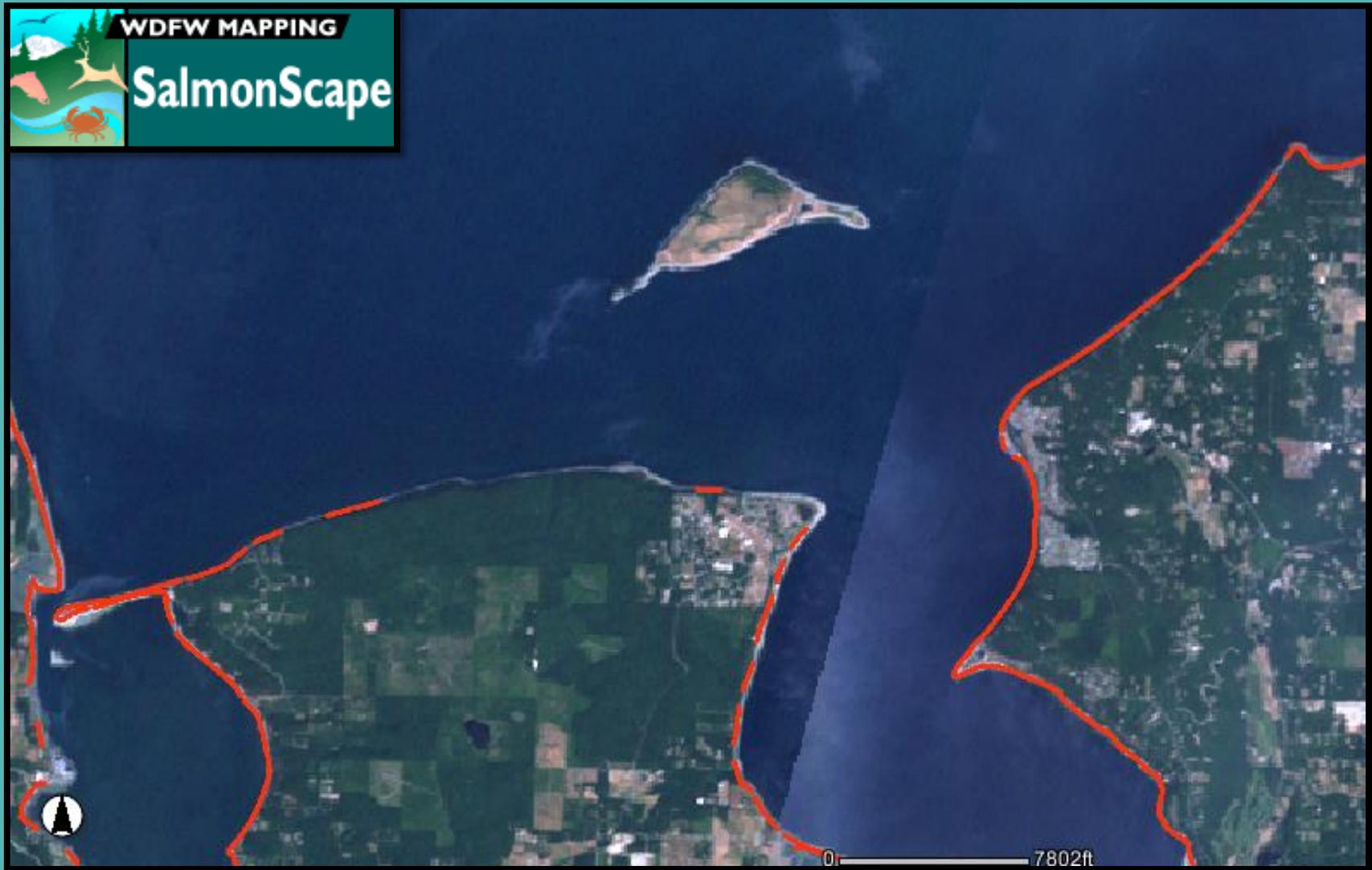
Beach Number	Sample Number	species	1 cut to mouth	blanks	gastrea	12-1 col	1 col	112 col	>112 col	Inte eyed	dead	# eggs	% dead	est. # broods	wt. substrate	wt. eggs/gram	remarks
1	1	0															0/4
1	2	0															0/4
1	3	0															0/4
1	4	0															0/4

Lab

Documented Spawning Habitat



Potential Spawning Habitat



Mussel Watch

- *Objective: To assess contamination of coasts; Ongoing since 1986, the longest contaminant monitoring program in U.S. coastal waters*

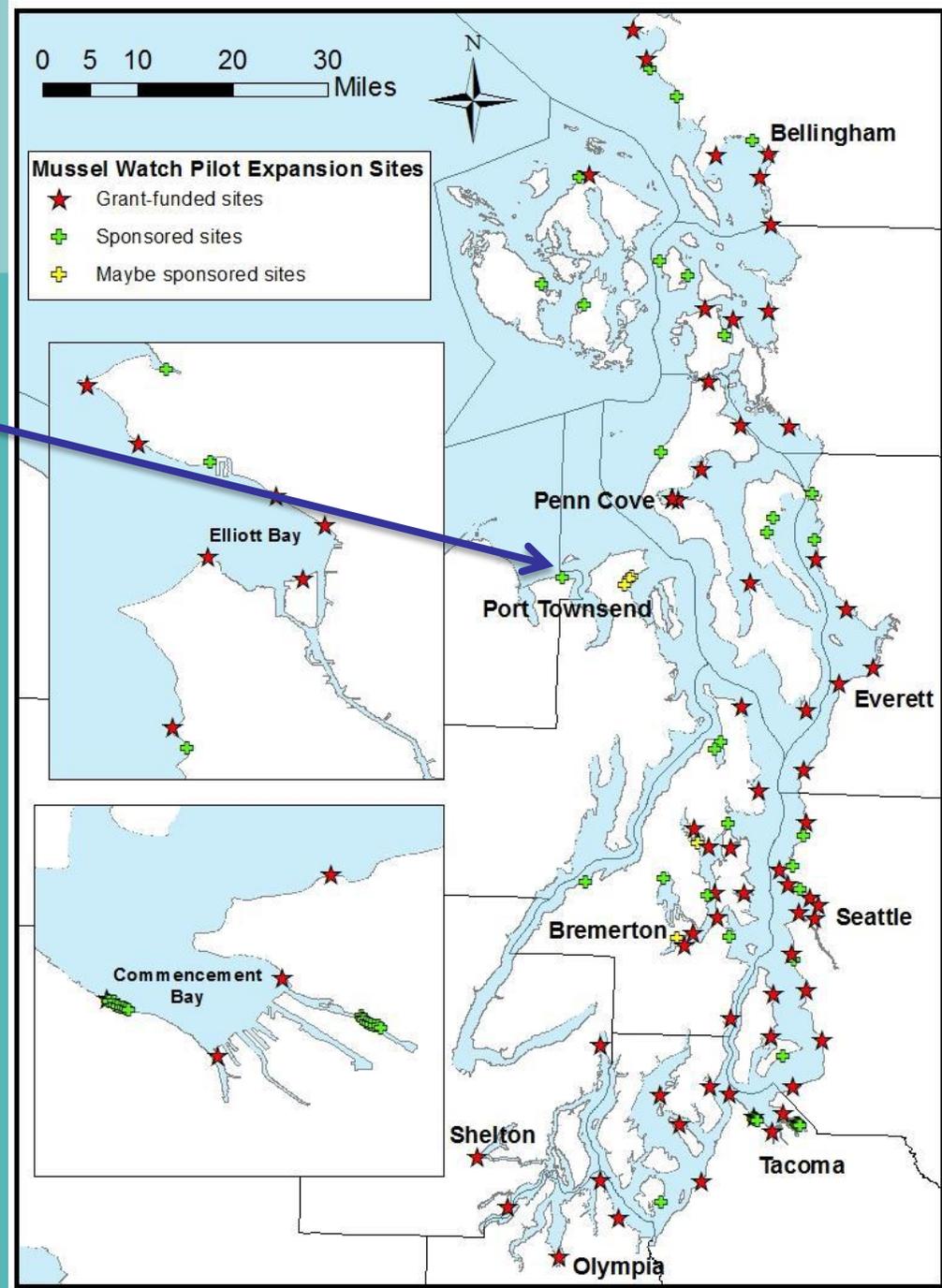


Mussel Watch



- Working with WDFW and Puget Sound Environmental Monitoring Program (PSEMP)
- October 2012 through January 2013
- Tissue is then analyzed for over 100 contaminants
- Results will be included in NOAA's national Mussel Watch database

Thompson Spit Mussel Watch Cage Location



SeagrassNet

Global Seagrass Monitoring Network



Objective: To document the status of seagrass resources and the threats to this important and imperiled marine ecosystem.



Eelgrass beds provide essential habitat and act as indicators of environmental health.





SeagrassNet

- Thompson Spit is one of 122 sites in 33 countries
- Sampling follows a global monitoring protocol
- Data is submitted to international database

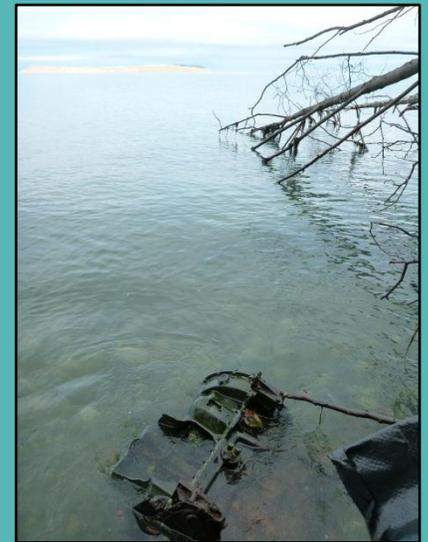


Marine Debris Cleanup



Objective: To remove debris, trash, and litter from beaches to improve ecosystem health, habitat, and human health and safety.

- Removing debris from beaches and nearshore habitats
- Documenting cleanup for The Ocean Conservancy's International Coastal Cleanup Program



Marine Debris Cleanup

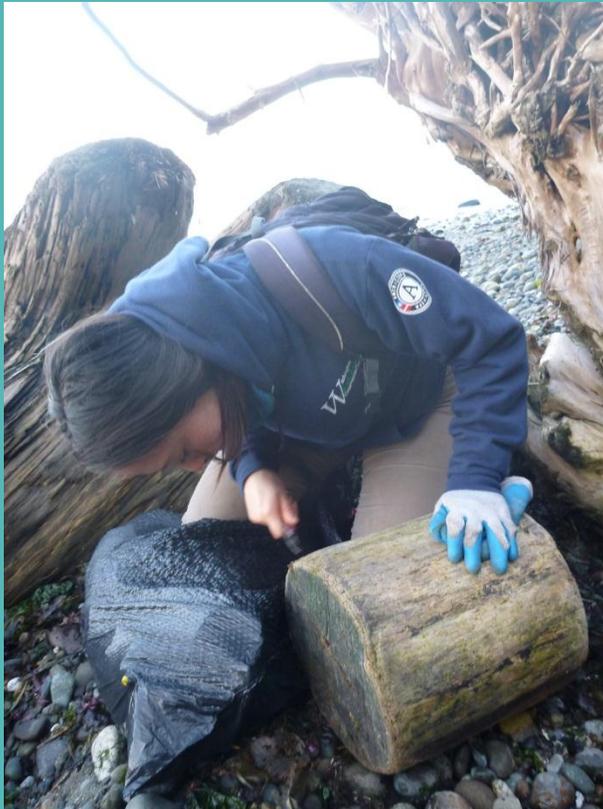
In October and November alone, we

- cleared debris from **1.5 million square feet** of the Protection Island Reserve!
- Removed an estimated **1285 pounds** of debris from all 7 reserves of the combined!



Creosote Identification and Removal

- *Objective: To identify and remove creosote-treated wood from Puget Sound's beaches*



- Suspected carcinogen and harmful to humans
- Highly toxic to many organisms, especially in the aquatic environment
- Inhibits spawning and leads to high mortality in spawning forage fish

Creosote Identification and Removal

- Eight creosote structures and/or logs have been mapped within the Protection Island Reserve
- Continuous surveying to monitor movement, disappearance or newly washed up logs
- Overall, the Protection Island Reserve doesn't have a big creosote problem!



Creosote Identification

- Tar-like substance, ring of black at the ends, injection marks and rotting from the inside first



Sediment Sampling

- *Objective: To provide baseline data that will be used in case of an oil spill to assess damages and restore natural resources*
- Samples are collected according to state and federal protocol
- Targeting areas of high ecological, recreational, or commercial value
- Data used to obtain money from responsible parties for damages caused/assumed.



Sediment Sampling

- Over the past 15 years, several million dollars have been deposited in the Coastal Protection Fund for fish and wildlife restoration projects due to this program.
- In 2007, \$30,000 of this money was used to remove creosote logs from Dungeness Spit.







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